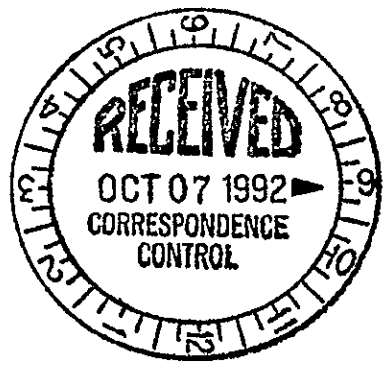
START Department of Energy
Richland Field Office
P.O. Box 550
Richland, Washington 99352

0023807
9206472

92-RPA-271

SEP 28 1992



Mr. Paul T. Day
U.S. Environmental Protection Agency
Region 10
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Mr. David B. Jansen, P.E.
State of Washington
Department of Ecology
Post Office Box 47600
Olympia, Washington 98504-7600

9 2 1 2 7 3 5 0 1 7 0

Dear Messrs. Day and Jansen:

SPRAYING OF MULBERRY BUSHES IN THE 100-N AREA OF THE HANFORD SITE

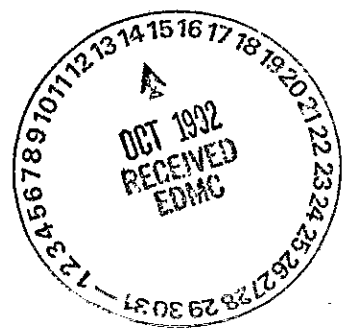
References: (1) Letter, R. D. Izatt, RL, and R. E. Lerch, WHC, to D. Sherwood, EPA, and L. Goldstein, Ecology, "Removal of Mulberry Bushes from the Hanford Site, Richland, Washington," dated March 18, 1992. 19799

(2) Letter, R. D. Izatt, RL, and R. E. Lerch, WHC, to P. T. Day, EPA, and D. B. Jansen, Ecology, "Cutting of Mulberry Bushes at Hanford," dated January 22, 1992. 18667

(3) Letter, T. L. Nord, Ecology, to S. H. Wisness, RL, "Removal Action in the 100-NR-1 Operable Unit," dated December 30, 1991. 19284

This is a follow-up notification to the above referenced letters that in December 1991, several radioactive contaminated mulberry bushes were removed from the 100-N Area of the Hanford Site. This notice is made pursuant to the above referenced letters. As discussed in Reference 1, a followup application of the herbicide "Rodeo" was planned for the mulberry bush stumps to prevent the return of the mulberry bushes. The "Rodeo" was applied to the stumps on August 11, 1992, as shown in the attached herbicide application records. A general application of "Rodeo" had been applied to the 100-N Springs on May 8, 1992, to control growth between the high water line and the road. Herbicide application records from that spraying are also attached.

All pesticide applications were done in accordance with applicable State and Federal Standards and they were conducted under the direction of a licensed Commercial Pesticide Applicator.



If you have further questions on this application, please contact Mr. Alex Teimouri, Office of Environmental Assurance, Permits, and Policy on (509) 376-6222.

Sincerely,

James D. Bauer

James D. Bauer, Acting Program Manager
Office of Environmental Assurance,
Permits, and Policy

EAP:AET

Attachment:
Herbicide Application Records

cc: R. E. Lerch, WHC
D. C. Nylander, Ecology

9212750472

HERBICIDE APPLICATION RECORD - SITE SPRAYING

100N- Operations Maintenance
Work Package Customer

C. L. Looney — 9370
Commercial Pesticide Applicator (C.P.A.) — C.P.A.s' W.S.D.A. License No.

T. P. Frazier — 10712
Commercial Pesticide Operator(s) (C.P.O.(s)) — C.P.O.s' W.S.D.A. License No.

T. P. Frazier — 2511
Signature (C.P.O.) — Spray Rig W.S.D.A. License No.

T. P. Frazier
Signature of Person Completing Record

COMPLETE ON A DAILY BASIS

VMP No.	Product Name	E.P.A. Reg. No.	Rate of Product Applied Per/AC	Total Mix Applied Per/AC	Concentration of Mix	Supplier
92-101	Rodeo	524-343	N/A	N/A	1%	Wilbur Ellis
92-101	R-11	N/A	N/A	N/A	0.16%	Wilbur Ellis

mt. No.	Date Yr.	Time Started	Time Finish	Wind Direc.	Wind Veloc.	Temp °F	Work Package No.	Area (200E, 600, etc.)	Total Area Treated	Total Herbicide Applied	Total Mix Applied	Check One Spot	Check One Solid	Location/Site Designator/Mile Posts Township Section Range
	8/11/92	9:45		NW	1-3	78	100N-Springs	100	N/A	13.3oz	10gal*	X		100N Springs, T14N, R26E, Sec 28
			10:35	NE	5-9	86	100N-Springs	100						Treated Mulberry stumps and shoots
														only.

ield Inspection Data

lotes: Both backpack sprayers triple rinsed.
NOTE: both tanks had residues of less than 0.01% Surflan
These employees treated the N-Springs Site using the backpack sprayers:
R. H. Clark #43657
J. D. Crosby #43363

NOTE: Application made with .072 nozzle @15psi and 55 gallons water per acre

Inspector _____ Date _____
Print and Sign

ISTRIBUTION: Original White Copy - Commercial Applicator Files; Canary Copy - Maintenance or Production Spray Unit; Pink - VMP Files

9 2 1 2 7 1 5 0 4 7 3

HERBICIDE APPLICATION RECORD - SITE SPRAYING

Work Package Customer: Clayton L. Looney

Commercial Pesticide Applicator (C.P.A.): see notes: (below) Clayton L. Looney

C.P.A.s' W.S.D.A. License No.: see notes: (below)

Commercial Pesticide Operator(s) (C.P.O.(s)): Clayton L. Looney

C.P.O.s' W.S.D.A. License No.: 2510

Signature (XXXX) (C.P.A.)

Spray Rig W.S.D.A. License No.

Signature of Person Completing Record

COMPLETE ON A DAILY BASIS

VMP No.	Product Name	E.P.A. Reg. No.	Rate of Product Applied Per/AC	Total Mix Applied Per/AC	Concentration of Mix	Supplier
92-101	Rodeo	524-343	N/A	N/A	1% solution	Wilbur Ellis

Trmt. No.	Date Yr.	Time Started	Time Finish	Wind Direc.	Wind Veloc.	Temp °F	Work Package No.	Area (200E, 600, etc.)	Total Area Treated	Total Herbicide Applied	Total Mix Applied	Check One Spot	Check One Solid	Location/Site Designator/Mile Posts Township Section Range
1	8/ 5/92	10:00	11:25	NW	0-3	75		100N	5 acres	0.4 gal	40 gal	X		100N Springs (RCA) T14N, R26E. Treated from high water line to road. See attached map for location. section 28

Field Inspection Data

Operation overseen by C. L. Looney #9370

Notes: M. E. Whitten #43547
J. D. Crosby #43363
R. H. Clark #43657

R-11 added to mix at 2.0 quarts per 100 gallons water.

Inspector _____ Date _____
Print and Sign

DISTRIBUTION: Original White Copy - Commercial Applicator Files; Canary Copy - Maintenance or Production Spray Unit; Pink - VMP File

Wilbur-Ellis

SPREADER ACTIVATOR

R-11™

NON-FOAMING, NON-IONIC,
FOR AGRICULTURAL SPRAYS

NET CONTENTS: 2½ GALLONS

MAXIMUM EFFICIENCY!

90% ACTIVE . . . R-11 Spreader-Activator is concentrated so you get more for your money. Other products may be as low as 30%, requiring more product to do the job.

NON-IONIC . . . R-11 Spreader-Activator can be used with a wide range of agricultural chemicals, such as Roundup®, Gramoxone® Paraquat, Glean®, Avenge®, and Banvel®.

A SPREADER & ACTIVATOR . . . R-11 Spreader-Activator improves activity and penetration of the spray, while reducing surface tension allowing liquid to spread evenly.

PRINCIPAL FUNCTIONING AGENTS
% By Wt.

Octyl Phenoxy Polyethoxy Ethanol, Isopropanol, and Compounded Silicone	90%
Constituents Ineffective As Spray Adjuvant	10%
TOTAL	100%

(continued on next page)

R-11 SPREADER-ACTIVATOR (continued)

DIRECTIONS FOR USE:

R-11 Spreader-Activator is a combined Spreader-Activator for increasing the efficiency of various agricultural chemicals. It should be used where quick wetting and uniform coverage of an agricultural chemical is required. Increases absorption and translocation — inhibits rust and corrosion. Rate of R-11 Spreader-Activator may vary with the conditions of application. Use just enough to form a uniform film. Excessive rates will not result in excessive foaming. Always add as the last ingredient to tank with agitator running.

"This label not for use in California. Obtain a California label before using in that State."

KEEP OUT OF REACH OF CHILDREN

CAUTION:

Causes eye irritation. In case of contact with eyes, immediately flush with water for at least 15 minutes. If irritation persists get medical attention. Avoid prolonged contact with skin.

NOTICE: The statements made on this label are believed to be true and accurate, but because of conditions of use which are beyond our control, WILBUR-ELLIS COMPANY does not make, nor does it authorize any agent or representative to make, any warranty, guaranty or representation, expressed or implied, concerning this material or the use thereof, except in conformity with the statements on the label. Neither WILBUR-ELLIS COMPANY nor the seller shall be held responsible in any manner for any personal injury or property damage or loss resulting to the buyer or to the other person from handling, storage or use of this material, not in accordance with directions. The buyer assumes all risk and liability resulting from improper handling.

30915 F-186

In Case of Emergency,
Call CHEMTREC: (800) 424-9300

Manufactured in U.S.A. by

Wilbur-Ellis

Ideas to grow with.

P.O. BOX 16458 • FRESNO, CA 93755

SUGGESTIONS FOR USE:

Acaricides, Fungicides and Insecticides — Use 2 to 8 ounces per 100 gallons of spray.

Herbicides, Defoliants and Dessicants — Use ½ to 3 pints per 100 gallons of spray.

Livestock Sprays — Use 4 to 8 ounces per 100 gallons of spray.

Soil Sterilants (top absorption) — Use 1% of total spray. Use higher rates at low temperatures.

R-11 Spreader-Activator is recommended for use in Fallow and Reduced Tillage systems with Roundup® and Gramoxone® Paraquat Herbicides. R-11 Spreader-Activator may be used with Banvel® herbicides "Between Crops Application." Application rates should be as recommended on these herbicide labels.

R-11 Spreader-Activator may be used to improve wetting of undesirable vegetation when applying Roundup®. Application should be made at recommended Roundup® label and spray volume rates. R-11 Spreader-Activator may be used to improve the wetting and/or contact activity of Glean® herbicide.

R-11 Spreader-Activator may be used with Avenge® herbicide for spray volumes in excess of 10 gallons of spray per acre. Application rates should be as recommended on the Avenge® label.

Roundup®— Trademark of Monsanto Company
Gramoxone® Paraquat — Trademark of ICI Americas, Inc.
Glean®— Trademark of E.I. duPont deNemours and Co.
Avenge®— Trademark of American Cyanamid Company
Banvel®— Trademark of Velsicol Chemical Company

EPA Reg. No. 16449

MSDS # 16419

M A T E R I A L S A F E T Y D A T A S H E E T

WILBUR-ELLIS COMPANY
P.O. BOX 16458
FRESNO, CA 93755

EMERGENCY TELEPHONE NUMBER (209) 226-1934

24 HOUR EMERGENCY TELEPHONE NUMBER CHEMTREC: (800) 424-9300

SECTION 1 NAME
PRODUCT/TRADE NAME: R-11 SPREADER ACTIVATOR
EPA REGISTRATION #: None
CHEMICAL NAME/COMMON NAME:
2-Propanol/Isopropyl Alcohol
Octyl Phenoxy Polyethoxy Ethanol/Nonionic Surfactants

SECTION 2 HAZARDOUS INGREDIENTS

		CAS#	OSHA PEL	ACGIH TLV
Isopropyl Alcohol	10%	67-63-0	400 ppm	400 ppm
Nonionic Surfactants	80%	Mixture	NE	NE

SECTION 3 PHYSICAL DATA
SPECIFIC GRAVITY (H2O = 1): 1.00 MELTING POINT: NA
VAPOR DENSITY (AIR = 1): 2.0 (IPA) % VOLATILES BY VOL.: NE
ODOR: Alcohol
APPEARANCE: Clear Liquid
FLASH POINT/METHOD: 88 Deg. F Seta Flash
VAPOR PRESSURE (mmHg): NE
SOLUBILITY IN H2O: Soluble

SECTION 4 FIRE & EXPLOSION HAZARD
EXTINGUISHING MEDIA: [X] Water Fog [X] Foam [ ] Alcohol Foam [X] CO2 [X] Dry Chemical [ ] Other

FIRE FIGHTING PRECAUTIONS & HAZARDS:
Fight fire upwind. Wear positive pressure, self-contained breathing apparatus and full protective equipment. Cool exposed containers with water. Dike area to prevent entering drains, sewers or water courses.

SECTION 5 CARCINOGEN STATUS
[ ] OSHA [ ] NTP [ ] IARC
[X] No Listing Type

SECTION 6 REACTIVITY
[X] Stable
[ ] Unstable

HAZARDOUS POLYMERIZATION
[ ] May Occur [X] Will Not Occur

AVOID:
Oxidizers, Liquid chlorine, and Concentrated O2

HAZARDOUS DECOMPOSITION PRODUCTS:
COx, SiO2

SECTION 7 SPILL OR LEAK PROCEDURES
STEPS TO BE TAKEN IN CASE OF SPILL:
Wear appropriate respiratory and personal protective equipment. Absorb with inert material. Vacuum or sweep up, and place in approved disposal container.

MSDS # 16419

DECONTAMINATION:
Treat area with detergent and water. Absorb with inert material and place in approved container. Repeat as necessary until area is clean.
ENVIRONMENTAL HAZARDS:
Dike to prevent entering drains, sewers or water courses.
DISPOSAL:
Place in DOT - approved container and dispose of in an approved disposal site.

SECTION 8 HEALTH PRECAUTION DATA
INGESTION:
Acute oral LD50 (rabbit) Alcohol Ethoxylate 5.1 g/kg (Vista Chemical*). Wash thoroughly before eating, drinking or smoking. Do not ingest. Do not store near food or feed.

INHALATION:
Can cause respiratory irritation in high concentrations. PEL/TLV Isopropyl Alcohol 400 ppm. Wear appropriate respiratory protection for exposures above the PEL/TLV.

SKIN ABSORPTION:
Acute dermal LD50 (rabbit) for Alcohol Ethoxylate 1.5 g/kg (Vista Chemical*). Can cause mild skin irritation or dermatities. Wear proper personal protective equipment to reduce exposure.

EYE EXPOSURE:
May be mildly irritating to the eyes. If exposed, flush eyes for a minimum of 15 minutes with water. Wear proper eye protection to reduce splash exposure.

EFFECTS OF OVEREXPOSURE:
May cuase eye irritation and corneal inflammation. High concentrations can cause respiratory irritation. May cause skin irritation, scaling or dermatitis. No known chronic effects. Pre-existing medical conditions involving the above symptoms may be aggravated by exposure.

FIRST AID:
In all cases, get prompt medical attention. If ingested, give several glasses of water. Do not induce vomiting. For skin exposure, remove contaminated clothing and wash with soap and water. For eye contact, irrigate for a minimum of 15 minutes with water. If inhaled, remove victim to fresh air, and administer CPR if necessary.

SECTION 9 SPECIAL PROTECTION INFORMATION
RESPIRATORY PROTECTION:
Use NIOSH/MSHA - approved respirator for organic vapors for exposures up to 10 times the PEL/TLV. Positive pressure self-contained breathing apparatus should be used for confined space entry and exposures above 10 times the PEL/TLV.
PERSONAL PROTECTIVE EQUIPMENT:
Not normally required for this product. Recommend chemical goggles, long-sleeved coveralls, and rubber or neoprene boots.

MSDS # 16419

Product/Trade Name:R-11 SPREADER ACTIVATOR

VENTILATION:
Recommend local exhaust ventilation of at least 60 fpm for manufacture and formulation operations.

SECTION 10 SPECIAL PRECAUTIONS
Keep out of the reach of children.
Read and follow all label instructions.
Keep away from open flame, heat, or ignition sources.

SECTION 11 REGULATORY DATA

SARA HAZARD CLASS:	[ ]	Acute	[ ]	Chronic	[ ]	Flammable
	[ ]	Pressure	[ ]	Reactive	[X]	None
SARA 313:	[ ]	Yes	[X]	No	Chemical:		
SARA 302:	[ ]	Yes	[X]	No	Chemical:		
	TPQ:						
CERCLA:	[ ]	Yes	[X]	No	Chemical:		
	RQ:						
RCRA:	[X]	Yes	[ ]	No			

NFPA Hazard Rating:		NFPA Hazard Rating Scale:	
Health:	[1]	0=Minimal	3=Serious
Fire:	[1]	1=Slight	4=Severe
Reactivity:	[0]	2=Moderate	
Special:	[ ]		
HMIS Codes:		HMIS Hazard Rating Scale:	
Health:	[1]	0=Minimal	3=Serious
Fire:	[1]	1=Slight	4=Severe
Reactivity:	[0]	2=Moderate	

DATE PREPARED: May 8, 1985
REVISED DATE: February 27, 1992
Notice: This information was developed from information on the constituent materials. No warranty is expressed or implied regarding the completeness or continuing accuracy of the information contained herein, and Wilbur-Ellis disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.
*Technical Material NE - Not Established NA - Not Applicable

MSDS NO. 21004

This sample label is current as of May 1, 1989. The product descriptions and recommendations provided in this sample label are for background information only. Always refer to the label on the product container before using Monsanto or any other agrichemical product.

RODEO

AQUATIC HERBICIDE

by Monsanto

Complete Directions for Use in Aquatic and Other Noncrop Sites.

EPA Reg. No. 524-343

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

®RODEO is a registered trademark of Monsanto Company.

This product has been approved for use in California except as stated otherwise on page 43.

1989-2 892.38-000.87/CG

Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION OR REPACKAGING IS PROHIBITED.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

MAY CAUSE EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

Avoid contact with eyes, skin or clothing.

Avoid breathing vapors or spray mist.

FIRST AID: IF IN EYES, flush with plenty of water for at least 15 minutes. Call a physician.

IF ON SKIN, flush with water. Wash clothing before reuse.

IF INHALED, remove individual to fresh air. Seek medical attention if breathing difficulty develops.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not contaminate water by cleaning of equipment or disposal of waste. Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

In case of:

SPILL or LEAK, soak up and remove to a landfill.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:	
*Isopropylamine salt of glyphosate	53.8%
INERT INGREDIENTS:	46.2%
	100.0%

*Contains 648 grams per litre or 5.4 pounds of the active ingredient isopropylamine salt of N-(phosphonomethyl) glycine per U.S. gallon. Equivalent to 480 grams per litre or 4 pounds per U.S. gallon of the acid glyphosate.

Product is protected by
U.S. Patent No. 3,799,758 and
U.S. Patent No. 4,405,531.
Other patents are pending.
No license granted under any non-U.S. patent.

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

GENERAL INFORMATION

This product, a water soluble liquid, mixes readily wit water and nonionic surfactant to be applied as a foli spray for the control or destruction of many herbaceou and woody plants.

This product moves through the plant from the point c foliage contact to and into the root system. Visible effec on most annual weeds occur within 2 to 4 days but o most perennial brush species may not occur for 7 day or more. Extremely cool or cloudy weather following trea ment may slow the activity of this product and dela visual effects of control. Visible effects are a gradual wilt ing and yellowing of the plant which advances to com plete browning of above-ground growth and deterioratio of underground plant parts.

Unless otherwise directed on this label, delay applica tion until vegetation has emerged and reached the stage described for control of such vegetation under th "Weeds Controlled" section of this label.

Unemerged plants arising from unattached undergrounc rhizomes or root stocks of perennials or brush will no be affected by the spray and will continue to grow. Fo this reason best control of most perennial weeds or brush is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when vegetation is heavy or dense.

Do not treat weeds or brush under poor growing conditions such as drought stress, disease or insect damage, as reduced control may result. Reduced results may also occur when treating weeds or brush heavily covered with dust.

Reduced control may result when applications are made to any weed or brush species that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours afte application may reduce effectiveness. Heavy rainfall o

MSDS NO. 21004

irrigation within 2 hours after application may wash the product off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product or other materials that are not expressly recommended in this label. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift, or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants, or other areas on which treatment was not intended. The likelihood of plant or crop injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. When not in use, keep container closed to prevent spills and contamination.

MIXING AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. HAND GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, such as WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: fill the mixing or spray tank with the required amount of water while adding the required amount of this product (see "Directions for Use" and "Weeds Controlled" sections of this label). Near the end of the filling process, add the required surfactant and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the water source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, place the filling hose below the surface of the spray solution, terminate by-pass and return lines at the bottom of the tank and if needed use an approved anti-foam or defoaming agent.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select correct nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

When using this product, mix 2 or more quarts of one of the following approved surfactants per 100 gallons of spray solution.

Agri-Dex™	Passage™
Induce™	Pro-Spreader Activator
LI-700™	R-11™
Liqua-Wet™	Spreader Sticker™
Ortho X-77™	Super Spread™ 200
	Widespread™

Always read and follow the manufacturer's surfactant label recommendations for best results.

These surfactants should not be used in excess of 1 quart per acre when making **broadcast** applications.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water and dispose of rinsate according to labeled use or disposal instructions.

Carefully observe all cautionary statements and other information appearing on the surfactant label.

™Agri-Dex and Induce are trademarks of the Helena Chemical Company.

™Liqua-wet is a trademark of the Woodbury Chemical Company.

™LI-700 is a trademark of Loveland Industries, Inc.

™Ortho X-77 is a trademark of Chevron Chemical Company.

™Passage is a trademark of Asgrow Florida Company.

Pro-Spreader Activator is distributed by Target Chemical Company.

™R-11 and Super Spread 200 are trademarks of the Wilbur-Ellis Company.

™Spreader-Sticker is a trademark of the Southern Mill Creek Products Company.

™Widespread is a trademark of the FMC Corporation.

APPLICATION EQUIPMENT AND TECHNIQUES

AERIAL EQUIPMENT

See the supplemental label for use of this product by air in California.

Use the recommended rates of this product and surfactant in 3 to 20 gallons of water per acre as a broadcast spray, unless otherwise specified. See the "Weeds Controlled" section of this label for specific rates. Aerial applications of this product may only be made as specifically recommended on this label.

AVOID DRIFT — DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY, OR UNDER ANY OTHER CONDITION WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application — To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

BOOM EQUIPMENT

For control of weed or brush species listed on this label using conventional boom equipment — Use the recommended rates of this product and surfactant in 3 to 30 gallons of water per acre as a broadcast spray, unless otherwise specified. See the "Weeds Controlled" section of this label for specific rates. As density of vegetation increases, spray volume should be increased within the recommended range to insure complete coverage. Carefully select correct nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

HAND-HELD and HIGH-VOLUME EQUIPMENT

Use Coarse Sprays Only

For control of weeds listed on this label using knapsack sprayers or high-volume spraying equipment utilizing handguns or other suitable nozzle arrangements — Prepare a ¾ to 1½ percent solution of this product in water, add an approved nonionic surfactant and apply to foliage of vegetation to be controlled. For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff.

Prepare the desired volume of spray solution by mixing the amount of this product in water, shown in the following table:

Spray Solution

DESIRED VOLUME	AMOUNT OF RODEO®			
	¾%	1%	1¼%	1½%
1 gallon	1 oz.	1⅓ oz.	1⅔ oz.	2 oz.
25 gallons	1⅓ pt.	1 qt.	1¼ qt.	1½ qt.
100 gallons	3 qt.	1 gal.	1¼ gal.	1½ gal.

2 tablespoons = 1 ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution and add the correct amount of surfactant.

WEEDS CONTROLLED

ANNUAL WEEDS

Apply to actively growing annual grasses and broadleaf weeds.

Allow at least 3 days after application before disturbing treated vegetation. After this period the weeds may be mowed, tilled or burned. See "Directions for Use,"

MSDS NO. 21004

"General Information," and "Mixing and Application Instructions" for labeled uses and specific application instructions.

Broadcast Application — Use 1½ pints of this product per acre plus 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution if weeds are less than 6 inches tall. If weeds are greater than 6 inches tall, use 2½ pints of this product per acre plus 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution.

Hand-Held High-Volume Application — Use a ¾ percent solution of this product in water plus 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution and apply to foliage of vegetation to be controlled.

When applied as directed under the conditions described in this label, this product plus nonionic surfactant WILL CONTROL the following ANNUAL WEEDS:

- **Balsamapple**** *Momordica charantia*
- **Barley** *Hordeum vulgare*
- **Barnyardgrass** *Echinochloa crus-galli*
- **Bassia, fivehook** *Bassia hyssopifolia*
- **Bluegrass, annual** *Poa annua*
- **Bluegrass, bulbous** *Poa bulbosa*
- **Brome** *Bromus spp.*
- **Buttercup** *Ranunculus spp.*
- **Cheat** *Bromus secalinus*
- **Chickweed, mouseear** *Cerastium vulgatum*
- **Cocklebur** *Xanthium strumarium*
- **Corn, volunteer** *Zea mays*
- **Crabgrass** *Digitaria spp.*
- **Dwarfdandelion** *Krigia cespitosa*
- **Falseflax, smallseed** *Camelina microcarpa*
- **Fiddleneck** *Amsinckia spp.*
- **Flaxleaf fleabane** *Conyza bonariensis*
- **Fleabane** *Erigeron spp.*
- **Foxtail** *Setaria spp.*
- **Foxtail, Carolina** *Alopecurus carolinianus*
- **Groundsel, common** *Senecio vulgaris*
- **Horseweed/Marestail** *Conyza canadensis*
- **Mustard, tansy** *Descurainia pinnata*
- **Mustard, tumble** *Sisymbrium altissimum*
- **Mustard, wild** *Sinapis arvensis*
- **Oats, wild** *Avena fatua*
- **Panicum** *Panicum spp.*
- **Pennycress, field** *Thlaspi arvense*
- **Pigweed, redroot** *Amaranthus retroflexus*
- **Pigweed, smooth** *Amaranthus hybridus*
- **Ragweed, common** *Ambrosia artemisiifolia*
- **Ragweed, giant** *Ambrosia trifida*
- **Rocket, London** *Sisymbrium irio*
- **Rye** *Secale cereale*
- **Ryegrass, Italian*** *Lolium multiflorum*
- **Sandbur, field** *Cenchrus spp.*
- **Shattercane** *Sorghum bicolor*
- **Shepherdspurse** *Capsella bursa-pastoris*
- **Signalgrass, broadleaf** *Brachiaria platyphylla*
- **Smartweed, Pennsylvania** *Polygonum pensylvanicum*
- **Sowthistle, annual** *Sonchus oleraceus*
- **Spanishneedles*** *Bidens bipinnata*
- **Stinkgrass** *Eragrostis cilianensis*
- **Sunflower** *Helianthus annuus*
- **Kochia** *Kochia scoparia*
- **Lambsquarters, common** *Chenopodium album*
- **Lettuce, prickly** *Lactuca serriola*
- **Morningglory** *Ipomoea spp.*
- **Mustard, blue** *Chorispora tenella*
- **Thistle, Russian** *Salsola kali*
- **Spurry, umbrella** *Holosteum umbellatum*
- **Velvetleaf** *Abutilon theophrasti*
- **Wheat** *Triticum aestivum*
- **Witchgrass** *Panicum capillare*

*Apply 3 pints of this product per acre.

**Apply with hand-held equipment only.

Annual weeds will generally continue to germinate from seed throughout the growing season. Repeat treatments will be necessary to control later germinating weeds.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most vigorously growing perennial weeds. Unless otherwise directed, allow at least 7 days after application before disturbing vegetation.

Add 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution to the rates of this product given in this list. See the "General Information," "Directions for Use," and "Mixing and Application" sections of this label for specific uses and application instructions.

NOTE: If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages. Fall treatments must be applied before a killing frost.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed.

When applied as recommended under the conditions described, this product plus surfactant WILL CONTROL the following PERENNIAL WEEDS:

- **Alfalfa** *Medicago sativa*
- **Alligatorweed*** *Alternanthera philoxeroides*
- **Artichoke, Jerusalem** *Helianthus tuberosus*
- **Bahiagrass** *Paspalum notatum*
- **Bermudagrass** *Cynodon dactylon*
- **Bindweed, field** *Convolvulus arvensis*
- **Bluegrass, Kentucky** *Poa pratensis*
- **Blueweed, Texas** *Helianthus ciliaris*
- **Brackenfern** *Pteridium spp.*
- **Bromegrass, smooth** *Bromus inermis*
- **Canarygrass, reed** *Phalaris arundinacea*
- **Cattail** *Typha spp.*
- **Clover, red** *Trifolium pratense*
- **Clover, white** *Trifolium repens*
- **Cogongrass** *Imperata clylindrica*
- **Cutgrass, giant*** *Zizaniopsis miliacea*
- **Dallisgrass** *Paspalum dilatatum*
- **Dandelion** *Taraxacum officinale*
- **Dock, curly** *Rumex crispus*
- **Dogbane, hemp** *Apocynum cannabinum*
- **Fescue** *Festuca spp.*
- **Fescue, tall** *Festuca arundinacea*
- **Guineagrass** *Panicum maximum*
- **Horsenettle** *Solanum carolinense*
- **Horseradish** *Armoracia rusticana*
- **Johnsongrass** *Sorghum halepense*
- **Kikuyugrass** *Pennisetum clandestinum*
- **Knapweed** *Centaurea repens*
- **Lantana** *Lantana camara*
- **Loosestrife, purple** *Lythrum salicaria*
- **Lotus, American** *Nelumbo lutea*
- **Maidencane** *Panicum hematomon*
- **Milkweed** *Asclepias spp.*
- **Muhly, wirestem** *Muhlenbergia frondosa*
- **Mullein, common** *Verbascum thapsus*
- **Napiergrass** *Pennisetum purpureum*
- **Nightshade, silverleaf** *Solanum elaeagnifolium*
- **Nutsedge: purple, yellow** *Cyperus rotundus* *Cyperus esculentus*
- **Orchardgrass** *Dactylis glomerata*
- **Pampasgrass** *Cortaderia jubata*
- **Paragrass** *Brachiaria mutica*
- **Phragmites**** *Phragmites spp.*
- **Quackgrass** *Agropyron repens*
- **Reed, giant** *Arundo donax*
- **Ryegrass, perennial** *Lolium perenne*
- **Smartweed, swamp** *Polygonum coccineum*
- **Spatterdock** *Nuphar luteum*
- **Sweet potato, wild*** *Ipomoea pandurata*
- **Thistle** *Cirsium arvense*
- **Timothy** *Phleum pratense*
- **Torpedograss*** *Panicum repens*
- **Tules, common** *Scirpus acutus*
- **Vaseygrass** *Paspalum urvillei*
- **Waterhyacinth** *Eichornia crassipes*
- **Waterlettuce** *Pistia stratiotes*
- **Waterprimrose** *Ludwigia spp.*
- **Wheatgrass, western** *Agropyron smithii*

*Partial control.

**Partial control in southeastern states. See specific recommendations below.

Alligatorweed — Apply 6 pints of this product per acre as a broadcast spray or as a 1¼ percent solution with hand-held equipment to provide partial control of alligatorweed. Apply when most of the target plants are in bloom. Repeat applications will be required to maintain such control.

Bermudagrass — Apply 7½ pints of this product per acre as a broadcast spray or as a 1½ percent solution with hand-held equipment. Apply when target plants are actively growing and when seed heads appear.

Bindweed, field/Silverleaf Nightshade/Texas Blueweed — Apply 6 to 7½ pints of this product per acre as a broadcast spray west of the Mississippi River and 4½ to 6 pints of this product per acre east of the Mississippi River. With hand-held equipment, use a 1½ percent solution. Apply when target plants are actively growing and are at or beyond full bloom. For silverleaf nightshade, best results can be obtained when application is made after berries are formed. Do not treat when weeds are under drought stress. New leaf development indicates active growth. For best results apply in late summer or fall.

Brackenfern — Apply 4½ to 6 pints of this product per acre as a broadcast spray or as a ¾ to 1 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Cattail — Apply 4½ to 6 pints of this product per acre as a broadcast spray or as a ¾ percent solution with

MSDS NO. 21004

hand-held equipment. Apply when target plants are actively growing and are at or beyond the early-to-full bloom stage of growth. Best results are achieved when application is made during the summer or fall months.

Cogongrass — Apply 4.5 to 7.5 pints of this product per acre as a broadcast spray. Apply when cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Cutgrass, giant — Apply 6 pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment to provide partial control of giant cutgrass. Repeat applications will be required to maintain such control, especially where vegetation is partially submerged in water. Allow for substantial regrowth to the seven-to-ten-leaf stage prior to retreatment.

Dogbane, hemp / Knapweed / Horseradish — Apply 6 pints of this product per acre as a broadcast spray or as a 1½ percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth. For best results, apply in late summer or fall.

Fescue, tall — Apply 4½ pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained.

Guineagrass — Apply 4½ pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment. Apply when target plants are actively growing and when most have reached at least the 7-leaf stage of growth.

Johnsongrass / Bluegrass, Kentucky / Bromegrass, smooth / Canarygrass, reed / Orchardgrass / Ryegrass, perennial / Timothy / Wheatgrass, western — Apply 3 to 4½ pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained. In the fall, apply before plants have turned brown.

Lantana — Apply this product as a ¾ to 1 percent solution with hand-held equipment. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth.

Loosestrife, purple — Apply 4 pints of this product per acre as a broadcast spray or as a 1 percent solution using hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost.

Lotus, American — Apply 4 pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost. Repeat treatment may be necessary to control regrowth from underground parts and seeds.

Maidencane / Paragrass — Apply 6 pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment. Repeat treatments will be required, especially to vegetation partially submerged in water. Under these conditions, allow for regrowth to the seven-to-ten leaf stage prior to retreatment.

Milkweed, common — Apply 4½ pints of this product per acre as a broadcast spray or as a 1½ percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth.

Nutsedge, purple, yellow — Apply 4½ pints of this product per acre as a broadcast spray, or as a ¾ percent solution with hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Apply when target plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control.

Pampasgrass — Apply a 1.5 percent solution of this product with hand-held equipment when plants are actively growing.

Phragmites — For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 7.5 pints per acre as a broadcast spray or apply a 1½ percent solution with hand-held equipment. In other areas of the U.S., apply 4 to 6 pints per acre as a broadcast spray or apply a ¾ percent solution with hand-held equipment for partial control. For best results, treat during late summer of fall months when plants are actively growing and in full bloom. Due to the dense nature of the vegetation, which may prevent good spray coverage and uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass / Kikuyugrass / Muhly, wirestem — Apply 3 to 4½ pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment when most quackgrass or wirestem muhly is at least 8 inches in height (3- or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Reed, giant — For control of giant reed, apply 1.5 percent solution of this product with hand-held equipment when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Spatterdock — Apply 6 pints of this product per acre as a broadcast spray or as a ¾ percent solution with hand-held equipment. Apply when most plants are in full bloom. For best results, apply during the summer or fall months.

Sweet potato, wild — Apply this product as a 1½ percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment.

Thistle — Apply 3 to 4½ pints of this product per acre as a broadcast spray or as a 1½ percent solution with hand-held equipment. Apply when target plants are actively growing and are at or beyond the bud stage of growth.

Torpedograss — Apply 6 to 7½ pints of this product per acre as a broadcast spray or as a ¾ to 1½ percent solution with hand-held equipment to provide partial control of torpedograss. Use the *lower rates under terrestrial* conditions, and the higher rates under partially submerged or a floating mat condition. Repeat treatments will be required to maintain such control.

Tules, common — Apply this product as a 1½ percent solution with hand-held equipment. Apply to actively growing plants at or beyond the seedhead stage of growth. After application visual symptoms will be slow to appear and may not occur for 3 or more weeks.

Waterhyacinth — Apply 5 to 6 pints of this product per acre as a broadcast spray or apply a ¾ to 1 percent solution with hand-held equipment. Apply when target plants are actively growing and at or beyond the early bloom stage of growth. After application, visual symptoms may require 3 or more weeks to appear with complete necrosis and decomposition usually occurring within 60 to 90 days. Use the higher rates when more rapid visual effects are desired.

Waterlettuce — For control, apply ¾ to 1 percent solution of this product with hand-held equipment to actively growing plants. Use higher rates where infestations are heavy. Best results are obtained from mid-summer through winter applications. Spring applications may require retreatment.

Waterprimrose — Apply this product as a ¾ percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the bloom stage of growth, but before fall color changes occur. Thorough coverage is necessary for best control.

Other perennials listed on this label — Apply 4½ to 7½ pints of this product per acre as a broadcast spray or as a ¾ to 1½ percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached early head or early bud stage of growth.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product plus surfactant CONTROLS or PARTIALLY CONTROLS the following woody brush plants and trees:

Alder
Alnus spp.

Ash*
Fraxinus spp.

Aspen, quaking
Populus tremuloides

Bearmat, Bearclover
Chamaebatia foliolosa

Birch
Betula spp.

Blackberry
Rubus spp.

Broom:
French
Cytisus monspessulanus

Scotch
Cytisus scoparius

Buckwheat, California*
Eriogonum fasciculatum

Cascara*
Rhamnus purshiana

Catsclaw*
Acacia greggi

Maple:
Red**
Acer rubrum

Sugar
Acer saccharum

Vine*
Acer circinatum

Monkey Flower*
Mimulus guttatus

Oak:
Black*
Quercus velutina

Northern pine
Quercus palustris

Post
Quercus stellata

Red
Quercus rubra

Southern red
Quercus falcata

White*
Quercus alba

Persimmon*
Diospyros spp.

MSDS NO. 21004

Ceanothus
Ceanothus spp.

Chamise
Adenostoma fasciculatum

Cherry:
Bitter
Prunus emarginata
Black
Prunus serotina
Pin
Prunus pensylvanica

Coyote brush
Baccharis consanguinea

Creeper, Virginia*
Parthenocissus quinquefolia

Dewberry
Rubus trivialis

Elderberry
Sambucus spp.

Elm*
Ulmus spp.

Eucalyptus, bluegum
Eucalyptus glotulus

Hasardia*
Haplopappus squamosus

Hawthorn
Crataegus spp.

Hazel
Corylus spp.

Holly, Florida; Brazilian Peppertree
Schinus terebinthifolius

Honeysuckle
Lonicera spp.

Kudzu
Pueraria lobata

Locust, black*
Robinia pseudoacacia

Manzanita
Arctostaphylos spp.

Poison Ivy
Rhus radicans

Poison Oak
Rhus toxicodendron

Poplar, yellow*
Liriodendron tulipifera

Raspberry
Rubus spp.

Rose, multiflora
Rosa multiflora

Sage, black
Saliva mellifera

Sagebrush, California
Artemisia californica

Salmonberry
Rubus spectabilis

Saltbush, Sea myrtle
Baccaharis halimifolia

Sassafras
Sassafrass aibidum

Sourwood*
Oxydendrum arboreum

Sumac:
Poison*
Rhus vernix
Smooth*
Rhus glabra
Winged*
Rhus copallina

Sweet gum
Liquidambar styraciflua

Swordfern*
Polystichum munitum

Tallowtree, Chinese
Sapium sebiferum

Thimbleberry
Rubus parviflorus

Tobacco, tree*
Nicotiana glauca

Trumpetcreeper
Campsis radicans

Waxmyrtle, southern*
Myrica cerifera

Willow
Salix spp.

*Partial control
**See below for control or partial control instructions.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stage of growth.

Apply the recommended rate of this product plus 2 or more quarts of an approved nonionic surfactant per 100 gallons of spray solution when plants are actively growing and unless otherwise directed, after full-leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering. Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See "Directions for Use" and "Mixing and Application Instructions" section of this label for labeled use and specific application instructions.

Apply the product as follows to control or partially control the following woody brush and trees.

Alder / Blackberry / Dewberry / Honeysuckle / Oak, Post / Raspberry — For control, apply 4½ to 6 pints per acre as a broadcast spray or as a ¾ to 1¼ percent solution with hand-held equipment.

Aspen, Quaking / Hawthorn / Trumpetcreeper — For control, apply 3 to 4½ pints of this product per acre as a broadcast spray or as a ¾ to 1¼ percent solution with hand-held equipment.

Birch / Elderberry / Hazel / Salmonberry / Thimbleberry — For control, apply 3 pints per acre of this product as a broadcast spray or as a ¾ percent solution with hand-held equipment.

Broom: French, Scotch — For control, apply a 1¼ to 1½ percent solution with hand-held equipment.

Buckwheat, California / Hasardia / Monkey Flower / Tobacco, Tree — For partial control of these species, apply a ¾ to 1½ percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw — For partial control, apply a 1¼ to 1½ percent solution with hand-held equipment and at least 50 percent of the new leaves are fully developed.

Cherry: Bitter, Black, Pin / Oak, Southern Red / Sweet Gum — For control, apply 3 to 7½ pints of this product per acre as a broadcast spray or as a 1 to 1½ percent solution with hand-held equipment.

Coyote Brush — For control, apply a 1¼ to 1½ percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucalyptus, bluegum — For control of eucalyptus resprouts, apply a 1½ percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are actively growing. Avoid application to drought-stressed plants. For control of eucalyptus trees 2 to 24 inches in diameter, cut trees as close to the soil surface as desired. Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting. Delay in applying this product may result in poor performance.

Holly, Florida / Waxmyrtle — For partial control, apply this product as a 1½ percent solution with hand-held equipment.

Kudzu — For control, apply 6 pints of this material per acre as a broadcast spray or as a 1½ percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Maple, Red** — For control, apply as a ¼ to 1¼ percent solution with hand-held equipment when leaves are fully developed. For partial control, apply 2 to 7½ pints of this product per acre as a broadcast spray.

Maple, Sugar / Oak: Northern Pin, Red — For cor apply as a 2 to 7½ percent solution with hand equipment when at least 50 percent of the new le are fully developed.

Poison Ivy / Poison Oak — For control, apply 6 to pints of this product per acre as a broadcast spra as a 1½ percent solution with hand-held equipme Repeat applications may be required to maintain c trol. Fall treatments must be applied before leaves l green color.

Rose, Multiflora — For control, apply 3 pints of t product per acre as a broadcast spray or as a ¾ p cent solution with hand-held equipment. Treatmer should be made prior to leaf deterioration by le feeding insects.

Sage, Black / Sagebrush, California / Chamis Tallowtree, Chinese — For control of these speci apply a ¾ percent solution of this product as a foli spray with hand-held equipment. Thorough covera of foliage is necessary for best results.

Saltbush, Sea myrtle — For control, apply this produ as a 1 percent solution with hand-held equipmen

Willow — For control, apply 4½ pints of this produ per acre as a broadcast spray or as a ¾ percent sol tion with hand-held equipment.

***Other woody brush and trees listed in this label** – For partial control, apply 3 to 7½ pints of this produc per acre as a broadcast spray or as a ¾ to 1½ percen solution with hand-held equipment.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product i any manner inconsistent with its labeling.

Storage and Disposal

Do not contaminate water, foodstuffs, seed or feed b storage or disposal.

STORAGE:
STORE ABOVE 10°F. (−12°C.) TO KEEP PRODUCT FROM CRYSTALIZING.

Crystals will settle to the bottom. If allowed to crystalize, place in a warm room 68°F. (20°C.) for several days to redissolve and mix well before using.

DISPOSAL:
Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is destroyed. Do not reuse container, destroy when empty.

Triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

AQUATIC AND OTHER NONCROP SITES

When applied as directed and under the conditions described in the "Weeds Controlled" section of this label, this product will control or partially control the labeled weeds growing in the following industrial, recreational, and public areas or other similar sites.

MSDS NO. 21004

Aquatic Sites — including all bodies of fresh and brackish water which may be flowing, nonflowing, or transient. This includes lakes, rivers, streams, ponds, seeps, irrigation and drainage ditches, canals, reservoirs, and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

There is no restriction on the use of treated water for irrigation, recreation, or domestic purposes.

Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

NOTE: Do not apply this product within ½ mile upstream of a potable water intake in flowing water (i.e., river, stream, etc.) or within ½ mile of a potable water intake in a standing body of water such as lake, pond, or reservoir.

This product does not control plants which are completely submerged or have a majority of their foliage under water.

For treatments after drawdown of water or in dry ditches, allow 7 or more days after treatment before reintroduction of water. Apply this product within one day after drawdown to ensure application to actively growing weeds.

Floating mats of vegetation may require retreatment. Avoid wash-off of sprayed foliage by spray boat or recreational boat backwash or by rainfall within 6 hours of application. Do not retreat within 24 hours following the initial treatment.

Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bankside applications, do not overlap more than 1 foot into open water. Do not spray across open moving bodies of water, or where weeds do not exist. The maximum application rate of 7½ pints per acre must not be exceeded in any single application.

When emerged infestations require treatment of the total surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

Other Noncrop-Type Sites:

Airports	Pipeline, Power, Telephone & Utility Rights of Way
Golf Courses	Pumping Installations
Highways & Roadsides	Railroads
Industrial Plant Sites	Schools
Lumberyards	Storage Areas
Parking Areas	Similar Sites
Parks	
Petroleum Tank Farms	

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into living tissue. Apply the equivalent of 1 ml of this product per 2 to 3 inches of trunk diameter. This is best achieved by applying 25 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying dilute material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as these, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, applications should be made during periods of active growth and full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak *Quercus spp.*	**Sweet gum** *Liquidambar styraciflua*
Poplar *Populus spp.*	**Sycamore** *Platanus occidentalis*

This treatment WILL SUPPRESS the following woody species:

Black gum *Nyssa sylvatica*	**Hickory** *Carya spp.*
Dogwood *Cornus spp.*	**Maple, red** *Acer rubrum*

CUT STUMP APPLICATION

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting. Delay in applying this product may result in reduced performance. For best results, trees should be cut during periods of active growth and full leaf expansion.

When used according to directions for injection or cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS most woody brush and tree species, some of which are listed below:

Alder *Alnus spp.*	**Oak** *Quercus spp.*
Coyotebrush *Baccharis consanguinea*	**Poplar** *Populus spp.*
Dogwood *Cornus spp.*	**Salt cedar** *Tamarix spp.*
Eucalyptus, bluegum *Eucalyptus glotulus*	**Sweet gum** *Liquidambar styraciflua*
Hickory *Carya spp.*	**Sycamore** *Platanus occidentalis*
Madrone *Arbutus menziesii*	**Tan oak** *Lithocarpus densiflorus*
Maple *Acer spp.*	**Willow** *Salix spp.*

RELEASE OF BERMUDAGRASS OR BAHIAGRASS ON NONCROP SITES

RELEASE OF DORMANT BERMUDAGRASS AND BAHIAGRASS

When applied as directed, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. Make applications to dormant bermudagrass or bahiagrass.

For best results on winter annuals, treat when weeds are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product in 10 to 25 gallons of water per acre plus 2 quarts nonionic surfactant per 100 gallons of total spray volume.

WEEDS CONTROLLED OR SUPPRESSED*

NOTE: C = Control
S = Suppression

	RODEO® FLUID OZ/ACRE					
WEED SPECIES	6	9	12	18	24	48
Barley, little *Hordeum pusillum*	S	C	C	C	C	C
Bedstraw, catchweed *Galium aparine*	S	C	C	C	C	C
Bluegrass, annual *Poa annua*	S	C	C	C	C	C
Chervil *Chaerophyllum tainturieri*	S	C	C	C	C	C
Chickweed, common *Stellaria media*	S	C	C	C	C	C
Clover, crimson *Trifolium incarnatum*	•	S	S	C	C	C
Clover, large hop *Trifolium campestre*	•	S	S	C	C	C
Speedwell, corn *Veronica arvensis*	S	C	C	C	C	C
Fescue, tall *Festuca arundinacea*	•	•	•	•	S	S
Geranium, Carolina *Geranium carolinianum*	•	•	S	S	C	C
Henbit *Lamium amplexicaule*	•	S	C	C	C	C
Ryegrass, Italian *Lolium multiflorum*	•	•	S	C	C	C
Vetch, common *Vicia sativa*	•	•	S	C	C	C

*These rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

NOTE: USE ONLY ON SITES WHERE BAHIAGRASS OR BERMUDAGRASS ARE DESIRED FOR GROUND COVER AND SOME TEMPORARY INJURY OR YELLOWING OF THE GRASSES CAN BE TOLERATED.

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "Weeds Controlled" section of this label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use ¾ to 2¼ pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre, plus 2 quarts of an approved nonionic surfactant per 100 gallons of total spray volume. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use higher rate as size of plants increases or as they approach flower or seedhead formation.

Use the higher rate for partial control or longer term suppression of the following perennial species. Use lower rates for shorter-term suppression of growth.

MSDS NO. 21004

Bahiagrass	Johnsongrass**
Dallisgrass	Trumpetcreeper*
Fescue (tall)	Vaseygrass

*Suppression at the higher rate only.
**Johnsongrass is controlled at the higher rate.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the "Noncrop Sites" section of this label, this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full green-up of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 5 fluid ounces per acre of this product, plus 2 quarts of an approved nonionic surfactant per 100 gallons of total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued vegetative growth suppression, sequential applications must be made prior to seedhead emergence.

Apply no more than 2 sequential applications per year. As a first sequential application, apply 3 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 3 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

CALIFORNIA

Rodeo® herbicide has been approved by the U.S. Environmental Protection Agency for the uses, crops and sites listed in this label. Approval of the items listed below is pending under the state of California registration requirements. These use conditions, crops and sites may not be treated with this product in California until approval is received:

- Use of 1.0 ml of this product per 2 to 3 inches of trunk diameter for injection and frill applications.
- Rice levees.
- Use of this product for cut stump treatments on the following species:

  Coyotebrush
  Dogwood
  Hickory
  Maple
  Poplar
  Sweetgum
  Sycamore

EPA Reg. No. 524-343

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

1989-2 892.38-000.87/CG

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63167 U.S.A.

169-89-L09

9 2 1 2 7 5 0 4 3 5

Monsanto MATERIAL SAFETY DATA

MSDS NO. 21004

MONSANTO PRODUCT NAME
RODEO® Herbicide

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MO 63167
Emergency Phone No. (Call Collect) 314-694-4000
DATE PREPARED: JANUARY, 1990

PRODUCT IDENTIFICATION

EPA Reg. No.:	524-343
Synonyms:	None.
Chemical Name:	Not Applicable, Formulated Product
Active Ingredient:	Glyphosate, N-phosphonomethylglycine, in the form of the isopropylamine salt..... 53.5%
Inert Ingredients:	..... 46.5%
	.....100.0%

*Contains 648 grams per liter or 5.4 pounds of the isopropylamine salt of N-(phosphonomethyl) glycine per U.S. gallon. Equivalent to 480 grams per liter or 4 pounds per U.S. gallon of the acid, glyphosate.

CAS Reg. No. :	Not Applicable, Formulated Product
CAS Reg. No. Active Ingredient:	1071-83-6
DOT Proper Shipping Name:	Not Applicable
DOT Hazard Class/I.D. No.:	Not Applicable
DOT Label:	Not Applicable
Reportable Quantity (RQ) Under U.S. CERCLA:	Not Applicable
U.S. Surface Freight Classification:	Weed Killing Compound, N.O.I.B.N.

SARA Hazard Notification

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):	Not Applicable
Section 313 Toxic Chemical(s):	Not Applicable
Hazardous Chemical(s) Under OSHA Hazard Communication Standard:	Not Applicable

WARNING STATEMENTS

Keep out of reach of children
CAUTION!
MAY CAUSE EYE IRRITATION
MAY BE HARMFUL IF INHALED

PRECAUTIONARY MEASURES

Avoid contact with eyes, skin or clothing.
Avoid breathing vapors or spray mist.
Wash thoroughly with soap and water after handling.
Do not contaminate water when disposing of equipment wash waters.
Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

EMERGENCY AND FIRST AID PROCEDURES

FIRST AID:

IF IN EYES:	Flush with plenty of water for at least 15 minutes. Get medical attention if symptoms persist.
IF ON SKIN:	Flush with water. Wash clothing before reuse.
IF INHALED:	Remove individual to fresh air. Seek medical attention if breathing difficulty develops.

OCCUPATIONAL CONTROL PROCEDURES

EYE PROTECTION: RODEO® herbicide does not present significant eye irritation or eye toxicity requiring special protection. Avoid eye contact as good industrial practice.

SKIN PROTECTION: RODEO® herbicide does not present significant skin concern requiring special protection.

RESPIRATORY PROTECTION: Respiratory protection should not be required for normal use and handling. During abnormal circumstances where possible exposure to heavy mists may occur, prudence would dictate the use of appropriate NIOSH/MSHA respirator to minimize the exposure. The respirator use limitations specified by NIOSH/MSHA or the manufacturer must be observed.

VENTILATION: No special precautions recommended.

AIRBORNE EXPOSURE LIMITS:

Product: RODEO® Herbicide - 100% by wt.

OSHA PEL/TWA and ACGIH TLV/TWA/STEL: None established

FIRE PROTECTION INFORMATION

Flash Point: > 200°F Method: Tag Closed Cup

Extinguishing Media: Water spray, foam, dry chemical or CO_2, or any Class B extinguishing agent.

Special Fire Fighting Procedures: Fire fighters and others who may be exposed to mist or products of combustion should wear a self-contained breathing apparatus and full protective clothing. Equipment should be thoroughly cleaned after use.

Unusual Fire and Explosion Hazards: None.

REACTIVITY DATA

Stability: Stable for at least 5 years under normal conditions of warehouse storage. Heated facilities are not required.

Incompatibility: Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: Does not occur. This product can react with caustic (basic) materials to liberate heat. This is not a polymerization but rather a chemical neutralization in an acid-base reaction.

HEALTH EFFECTS SUMMARY

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of RODEO® herbicide and development of Precautionary Statements and Occupational Control Procedures recommended in this document.

EFFECTS OF EXPOSURE

Inhalation and dermal contact are expected to be the primary routes of occupational exposure to RODEO herbicide. Occupational exposure to this material has not been reported to cause significant adverse health effects. On the basis of available information, exposure to RODEO is not expected to produce significant adverse human health effects when recommended safety precautions are followed.

TOXICOLOGICAL DATA

Data from laboratory studies conducted by Monsanto with RODEO herbicide are summarized below:

Oral - Practically Nontoxic (Rat LD_{50} - >5,000 mg/kg)
Dermal - Practically Nontoxic (Rabbit LD_{50} - >5,000 mg/kg)
Inhalation - No More Than Slightly Toxic (Rat 4-hr LC_{50} - >1.3 mg/l, the highest atmospheric concentration achievable in this study.)
Eye Irritation - Nonirritating (Rabbit, 0.0/110.0)
Skin Irritation - Practically Nonirritating (Rabbit, 24-hr exposure, 0.1/8.0)

In repeat dosing studies (6-months), dogs fed RODEO herbicide exhibited slight body weight changes. Following repeat skin exposure (3-weeks) to RODEO, skin irritation was the only effect in rabbits. No skin allergy was observed in guinea pigs following repeated skin exposure. Additional toxicity information is available on glyphosate, the active herbicidal ingredient of which has been tested in mutagenicity, teratogenicity, reproductive, acute, subchronic and chronic toxicity studies.

PHYSICAL DATA

Appearance: Colorless solution
Odor: Essentially odorless
pH: 4.6 - 4.8
Specific Gravity (Water = 1): 1.22 - 1.25

NOTE: These physical data are typical values based on material tested but may vary from sample to sample . Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SPILL, LEAK & DISPOSAL INFORMATION

SPILL/LEAK:

Observe all protection and safety precautions when cleaning up spills -- See Occupational Control Procedures.

Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgite, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under DISPOSAL. Thoroughly scrub floor or other impervious surfaces with a strong industrial type detergent solution and rinse with water.

Liquid spills that soak into the ground should be dug up, placed in plastic-lined metal drums and disposed of in accordance with instructions provided under DISPOSAL.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL. Any recovered spilled liquid should be similarly collected and disposed of.

Do not contaminate water, foodstuffs, seed or feed by storage or disposal.

DISPOSAL:

Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State and local procedures.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Do not reuse container. Return emptied container per the Monsanto container return program. If not returned, triple rinse container, then puncture and dispose of in a sanitary landfill or by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

SPILL, LEAK & DISPOSAL INFORMATION (Continued)

STORAGE:

STORE ABOVE 10°F (-12°C) TO KEEP FROM CRYSTALLIZING.

Crystals will settle to the bottom. If allowed to crystallize, place in a warm room at 68°F (20°C) for several days to redissolve and mix well before using.

ENVIRONMENTAL EFFECTS

ENVIRONMENTAL TOXICITY INFORMATION:

96-hr LC_{50} Bluegill:	>1,000 mg/l, Practically Nontoxic
96-hr LC_{50} Trout:	>1,000 mg/l, Practically Nontoxic
96-hr TL_{50} Carp:	>10,000 ppm, Practically Nontoxic
48-hr EC_{50} Daphnia:	930 mg/l, Practically Nontoxic
Oral LD_{50} Goat:	5,700 mg/kg, Practically Nontoxic

Brahman-cross heifers were given RODEO herbicide, by gavage, at daily dosages of 0, 540, 830, 1290 and 2000 mg/kg for 7 consecutive days. Clinical signs of toxicity, including loss of appetite, diarrhea and death (1290 and 2000 mg/kg) were observed at 830 mg/kg or above. The no-effect level was considered to be 540 mg/kg/day.

For environmental toxicity information on Glyphosate, the active herbicidal ingredient of RODEO, refer to the Glyphosate Material Safety Data Sheet.

DATE: January, 1990 **SUPERSEDES:** August, 1989

MSDS NUMBER: S00010153

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CALL : 314-694-4000

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
J. D. Bauer, RL (R. E. Lerch, WHC)	P. T. Day, EPA D. B. Jansen, Ecology	Incoming : 9206472 Xref 9256619

Subject: SPRAYING OF MULBERRY BUSHES IN THE 100-N AREA OF THE HANFORD SITE

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		M. R. Adams	H4-55	
		R. J. Bliss	B3-04	
		G. D. Carpenter	B2-16	
		H. L. Debban	X0-43	
		C. K. DiSibio	B3-03	
		R. E. Lerch	B2-35	
		C. L. Looney	N3-06	
		P. J. Mackey	B3-15	
		H. E. McGuire, Level 1	B3-63	
		W. H. Price	N3-05	
		D. J. Watson	X0-41	
		T. M. Wintczak	L4-92	
		R. D. Wojtasek, Assignee	L4-92	
		EDMC	H4-22	X

9 2 1 2 7 3 5 0 4 1 9 0

The attachment is the same as outgoing letter #9256619. ldp, 6-5710